25th ANNUAL NATIONAL CONFERENCE ON MANAGING ENVIRONMENTAL QUALITY SYSTEMS

APRIL 24-27, 2006

Marriott Renaissance, Austin, Texas

Technical Papers

Quality Improvement Practices in the EPA Office of Environmental Information

- P.Garvey, QA/QC - Who Determines the Quality and What Is Being Controlled? - 10:30 AM
- N. Wentworth, Quality Activities within OEI's Office of Information Analysis and Access - 11:30 AM

TECHNICAL SESSION:
Quality Improvement Practices
in the EPA Office of Environmental Information

QA/QC - Who Determines the Quality and What is Being Quality Controlled: The Facility Registry System's Experience on Improving Locational Data of Facilities/Sites

Pat Garvey, National System Manager of the Facility Registry System (FRS), Office of Environmental Information, Office of Information Collection

For over 35 years the EPA has struggled with being able to place all facilities/sites of environmental concern on a map. This lack of poor locational data has often prevented the Agency from doing top notch geo-spatial analysis. The assessment of many environmental problems could benefit greatly with accurate and complete locational data on the facilities/sites of environmental interest.

The Agency's enterprise database, Facility Registry System (FRS) is a terrific resource on the key identifiers of a facility. FRS integrates facilities across media and databases the locational values of these facilities and regulated outfalls (pipes, stacks, wells, etc.). The Goal of FRS in 2006 is to have 95% of all facilities accurately located and documented by year's end. That is over 1.8 million unique and distinct facilities/sites!

This lively presentation will describe the quality measures and activities that the FRS team under takes to achieve this ambitious goal. The presentation will highlight the basic components needed to undertake these QA/QC activities, such as: defined data standards, a descriptive locational policy and guidance, the FRS QAPP, and the data management practices which implement these components. The importance of a metadata record will be addressed which helps in data discovery and documentation of the scope and quality of the data holding. A brief description of web tools (Enterprise Site Locator Tool) will be highlighted to entice community involvement in assisting in locational improvement.

A humorous and respectful discussion will be on customer and stakeholders needs in the Community Right to Know, Homeland Security, Cross-media Analysis, and Emergency Response users. Many EPA web applications, such as: Windows to My Environment, Cleanups in My Community, EnviroMapper, and Tribal Information Management System, use the FRS locational values, thus many depend on the rigorous and constant measures in place by FRS to assure and control quality, which is paramount for accuracy and completeness.

Locational data comes to EPA and into FRS from a variety of sources which EPA has little control over. The challenge of databasing and using the most accurate locational values can be daunting. The conference attendees will be able to question and challenge the basic assumptions and actions the FRS team takes to achieve the goal of accurate and complete data on facility location.

Table 1. Comparison of Quality Metrics for Data Collection and Software Development

Environmental Data Quality Indicators (after EPA, 2002)		Software Quality Metrics and Attributes (after Dunn, 1990)
Bias		Reliability (completeness, consistency and precision, robustness, simplicity, traceability)
Precision		Usability (accuracy, conformity, documentation accuracy/clarity, completeness, efficiency, testability)
Accuracy		Maintainability (documentation accuracy/clarity, modularity, readability, simplicity)
Representativeness		Adaptability (modifiability, expandability, portability)
Comparability		
Completeness		
Sensitivity		

Table 2. Argonne National Laboratory Requirements for Software Documentation

Quality level	Level C+ (low)	Level B (medium)	Level A (high)
Software QA plan	**X**	**X**	**X**
Configuration plan	**X**	**X**	**X**
Testing plan	**X**	**X**	**X**
Testing records	**X**	**X**	**X**
Requirements document		**X**	**X**
Design document		**X**	**X**
Design reviews			**X**
Code reviews			**X**
Documentation		**X**	**X**
External reviews			If more than 3 person-years

EPA's Quality System
Why Was it Developed?
How Did We Get to Where We Are?

Nancy W. Wentworth
Director, Environmental Analysis Division
Office of Information Analysis and Access
Office of Environmental Information

The U. S. Environmental Protection Agency (EPA) has, from its very beginning, been a science-based organization. In fact, the predecessor organizations, such as the Federal Water Quality Administration and the National Air Pollution Control Administration, were already establishing standards for water and air quality based on the available data and information. There was a general awareness that data quality and having "enough" data needed to be considered, but there was no common approach to defining data needs or quality characteristics for data that would be used to support Agency actions.

This presentation will outline the forces that helped to form the Quality System, from the creation of the monitoring and testing programs of the early 1970's through the Administrator's memoranda in 1979 to the recent EPA Orders and National Standards for Quality Systems. The role of external commentary, such as reports by the Government Accountability Office, will also be discussed.